CST1204: Introduction to Databases

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Week 8 Session 1

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Homework Review

- WHERE Clause format >, <, AND, OR

- CHAR processing

    - Single quote, not double quote

    - (`'GME', 'PZL'`) vs (`'GME, PZL'`)

- `IN ()` vs "`= OR =`"

- `BETWEEN … AND` vs "`> and <`"

Agenda

- Functions
    - Date and char/varchar functions
    - COUNT, SUM, MIN, MAX, AVG
    - NULL handling

Row Level Functions

- Row level functions: Applies to every row being processed

- Date time operation functions

  - TO_DATE(date_column, format_string), SYSDATE

- String functions:

  - UPPER, LOWER, LENGTH, || (Concatenation)

Aggregation Functions

- Operates to a selected dataset. Provides statistical information of the selected data.
    - SUM function
    - AVG, MAX and MIN functions
    - COUNT function (details next slide)

Aggregation Functions

- COUNT function
  - COUNT(<column_name>)
  - COUNT(*): Difference is in whether NULL is counted
  - COUNT(distinct <column_name>)

NULL Handling

- NULL in aggregation:
  - Ignored in aggregations
  - Any calculation on a NULL value results in NULL
  - Only exception is COUNT(*)

Subquery

- The result of SQL queries:
  - Vector (list), or
  - Single value (SUM, AVG, e.g.)
- Using the result of a query in another query
  - Run one query, write down the output, and type in another query
  - Put the first query in parenthesis and place it in the second query

Subquery

- When subquery returns a single value: Directly use it as a number/string

- When subquery returns a list:

    - Directly use it in IN

    - ALL or ANY: vs. MAX/MIN

SQL Tips

- How to create a primary key with multiple (>2) columns

- How to insert from another table

- How to insert/find/update an unknown/missing value

- How to determine "not equal"

- How to achieve 10% increase/decrease

- How to select each value only once

- How to check strings starting with/ending with 'C'

- How to check strings containing 'tech'

TEST TWO on 10/21

- Same pattern for TEST TWO, THREE, FOUR, and FINAL
    - CREATE based on entity/relationship description
    - INSERT INTO
    - Update value in a column in the given row: regular value or NULL
    - Add a new column or modify an existing column
    - All sorts of SELECT … WHERE
    - DROP this table

Hands On

- Chapter 4 exercise questions 1-12 for Solmaris Condominium Group

Homework

- Review previous homeworks

- Chapter 4 exercise questions 1-12 for Solmaris Condominium Group